



**CONESTOGA-ROVERS
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April 17, 2008

Reference No. 038443

Ms. Karen Cibulskis
Remedial Project Manager
United States Environmental Protection Agency - Region V
77 West Jackson Boulevard
Mail Code SR-6J
Chicago, IL 60604

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This Document Previously
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Dear Ms. Cibulskis:

Re: Integration of Investigation Results into the Feasibility Study
South Dayton Dump and Landfill Site, Moraine, Ohio (Site)



This letter and the enclosed tables describe how the Remedial Investigation data collected in 2008 will be used in a Feasibility Study (FS) for the Site. The PRP Group submitted a draft Remedial Investigation/Feasibility Study (RI/FS) Work Plan to United States Environmental Protection Agency (USEPA) in January 2007. USEPA provided the PRP Group with comments on the draft RI/FS Work Plan. The PRP Group and USEPA met in January, February, and March 2008 to discuss USEPA's proposal to implement a presumptive remedy for parcels within the boundary of the Site and complete a conventional RI/FS for off-Site areas potentially impacted by the Site. As a result of those discussions, the PRP Group submitted a series of Letter Work Plans describing Site investigation work to be undertaken.

The following Letter Work Plans have been submitted to the USEPA:

- Land Survey, Bathymetry Survey, and Geophysical Investigation Letter Work Plan (CRA, March 14, 2008);
- Leachate Seep Investigation Letter Work Plan (CRA, March 13, 2008);
- Test Pit/Test Trench Investigation Letter Work Plan (CRA, March 17, 2008);
- Landfill Gas/Soil Vapor Investigation Letter Work Plan (CRA, March 14, 2008); and
- Groundwater Letter Work Plan (CRA, March 12, 2008).

The investigative tasks are discussed in detail in the individual Letter Work Plans.

CRA has prepared a series of tables that present the objectives described in each Letter Work Plan, a summary of the work to be completed under each Letter Work Plan, and a listing of how the resultant data will be used in a FS. The tables are as follows:

EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

REGISTERED COMPANY
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ENGINEERING DESIGN

Worldwide Engineering, Environmental, Construction, and IT Services



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- Table 1 - Land Survey, Bathymetry Survey, and Geophysical Investigation;
- Table 2 - Leachate Seep Investigation;
- Table 3 - Test Pit/Test Trench Investigation;
- Table 4 - Landfill Gas/Soil Vapor Investigation; and
- Table 5 - Groundwater Investigation.

The Potentially Responsible Parties will use these tables in the formulation and analysis of alternatives in a FS.

Please call the undersigned if you have any questions or comments.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Stephen M. Quigley

AL/ca/33

Encl.

c.c. Matt Mankowski, USEPA (PDF)
Matt Justice, Ohio EPA (PDF)
Eric Kroger, CH2M Hill (PDF)
Scott Blackhurst, Kelsey Hayes Company (PDF)
Wray Blattner, Thompson Hine (PDF)
Ken Brown, ITW (PDF)
Jim Campbell, Engineering Management Inc. (PDF)
Tim Hoffman, Representing Kathryn Boesch and Margaret Grillot (PDF)
Paul Jack, Castle Bay (PDF)
Robin Lunn, Mayer Brown (PDF)
Roger McCready, NCR (PDF)
Karen Mignone, Pepe & Hazard (PDF)
Adam Loney, CRA (PDF)

EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

TABLE 1

**LAND SURVEY, BATHYMETRY SURVEY, AND GEOPHYSICAL INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS⁽³⁾</i>
Conduct aerial and topographical survey of the entire Site and create an accurate topographical map	<ul style="list-style-type: none"> · Survey Site features using aerial techniques · Survey Site topography using an Ohio-registered land surveyor 	<ul style="list-style-type: none"> · Surface contour information · Current accurate topography 	<ul style="list-style-type: none"> · Establish slopes and grades for cap configurations · Determine cut and fill balance for consolidation options · Evaluate drainage design alternatives
Survey locations of existing structures and features	<ul style="list-style-type: none"> · Survey relative to the Ohio State Plane Grid Coordinates and NAD 83/NAVD 88⁽¹⁾ · Verify locations against the closest USGS⁽²⁾ benchmark monuments · Survey horizontal locations to the nearest 0.5-foot accuracy · Survey elevations (other than tops of monitoring well risers) to the nearest 0.1-foot accuracy · Survey monitoring well risers to the nearest 0.01-foot accuracy 	<ul style="list-style-type: none"> · Horizontal and Vertical locations of all objects 	<ul style="list-style-type: none"> · See above
Establish benchmarks for future surveying	<ul style="list-style-type: none"> · Establish settlement monuments across the Site 	<ul style="list-style-type: none"> · Five settlement monuments 	<ul style="list-style-type: none"> · Monitor landfill settlement
Complete surficial metallic debris collection and staging	<ul style="list-style-type: none"> · Collect surficial metallic debris · Relocate empty drums/drum carcasses to a central staging area · Intact drums in poor condition to be left in place · Complete geophysical investigation of staging area prior to construction · Install a containment berm and a 20-mil synthetic liner for leak and spill protection · Cover containment berm contents with polyethylene sheeting to prevent accumulation of storm water 	<ul style="list-style-type: none"> · Location of all surficial metal debris and intact drums on Site 	<ul style="list-style-type: none"> · Assess feasibility and benefits of consolidation

TABLE 1

**LAND SURVEY, BATHYMETRY SURVEY, AND GEOPHYSICAL INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS⁽³⁾</i>
Complete a bathymetry survey of the Quarry Pond, generate topographical information for the bottom of the Quarry Pond	· Collect data with an echosounder attached to a GPS receiver	· Sufficient data to complete a topographic map of the Quarry Pond	· Use results to complete an electromagnetic (EM) or magnetometer survey of the Quarry Pond to identify metallic anomalies on the bottom of the Quarry Pond · Assess type of waste · Assess extent of waste · Develop cap configuration alternatives
Complete a geophysical survey to identify buried metal and objects at the Site and identify Site areas which may require additional investigation	· Use magnetic, EM and ground penetrating radar (GPR) techniques to identify both ferrous and non-ferrous buried metal up to 20 feet below ground surface	· Location of buried metals and objects at the Site, including buried conduits and pipelines	· Use to identify areas which may require additional information or contribute to uncertainty in FS · Determine location of test pits and trenches, which will be used to determine waste boundaries and characteristics · Assess feasibility and benefits of consolidation

Notes:

⁽¹⁾ NAD 83/NAD 88 - North American Datum of 1983 / North American Vertical Datum of 1988

⁽²⁾ USGS - United States Geological Study

⁽³⁾ FS - Feasibility Study

TABLE 2

**LEACHATE SEEP INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS⁽³⁾</i>
Complete a seep inspection to identify seeps	<ul style="list-style-type: none"> · Inspect the entire embankment surface · Complete a photographic log 	<ul style="list-style-type: none"> · Evidence of groundwater or leachate discharge · Presence of erosion rills, areas of surface staining and/or stressed vegetation, and wet or saturated areas resulting from seeping liquid 	<ul style="list-style-type: none"> · Determine locations where leachate collection may be required · Aid in leachate volume estimates · Assess active or potential impact to groundwater
Characterize seeps observed along Site embankments	<ul style="list-style-type: none"> · If an active seep is observed, liquid sampling will be attempted, and the sample will be analyzed · If there is not enough liquid to fill sample jars, a sample of the surface soil will be collected, and analyzed · If no active seep is observed but indirect evidence is seen (erosion rills, stressed vegetation, etc.) a soil sample will be collected from that area 	<ul style="list-style-type: none"> · Samples will be analyzed for TCL VOCs, TAL metals and cyanide, TCL SVOCs, pesticides, and PCBs 	<ul style="list-style-type: none"> · Treatment/disposal technology and options evaluation · Assess active or potential impact to groundwater
Identify any areas that may require further investigation	<ul style="list-style-type: none"> · Review and evaluate any data generated from seepage, and determine whether it exceeds the Region 9 PRGs⁽³⁾ 	<ul style="list-style-type: none"> · Locations where leachate seepage is impacted at concentrations of potential concern 	<ul style="list-style-type: none"> · Determine locations where leachate collection may be required · Aid in leachate volume estimates · Site conceptual model and leachate migration potential

Notes:

- (1) TCL - Target Compound List, VOCs - Volatile Organic Compounds, TAL - Target Analyte List, SVOCs - Semi-volatile Organic Compounds, PCBs - Polychlorinated Biphenyls
 (2) FS - Feasibility Study
 (3) PRGs - Preliminary Remediation Goals

TABLE 3

**TEST PIT/TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS ⁽²⁾</i>
Collect data to assist in identifying the nature and delineating the extent of various types of landfilled materials above the water table	<ul style="list-style-type: none"> · Excavate six test pits · Excavate twenty-three test trenches · Excavate to the water table, where possible 	<ul style="list-style-type: none"> · Depth and nature of the fill material above the water table · Presence of native soil in excavations based on visual inspection 	<ul style="list-style-type: none"> · Assess extent of waste · Assess types of waste · Identification of areas that exhibit similar characteristics · Use to verify the limits and types of fill for cap types and dimensions · Use to provide a basis for a range of suitable cap construction alternatives
Collect data to assist in characterizing landfill materials above the water table			
Collect data to assist in characterizing leachate from unsaturated landfilled material	<ul style="list-style-type: none"> · Collect samples of leachate if leachate seeps from any of the test pits 	<ul style="list-style-type: none"> · Samples will be analyzed for TCL VOCs, TCL SVOCs, herbicides and pesticides, PCBs, and TAL inorganics ⁽¹⁾ 	<ul style="list-style-type: none"> · See Table 2 · Use data from inside the Site boundaries in alternative cap design evaluations and evaluation of potential groundwater impact
Assess areas of the Site previously identified as specific areas of concern	<ul style="list-style-type: none"> · Excavate test pits where waste is known to exist (Valley Asphalt drum removal area, Valley Asphalt former UST⁽³⁾ area, Custom Delivery UST area, etc.) 	<ul style="list-style-type: none"> · Samples will be analyzed for TCL VOCs, TCL SVOCs, herbicides and pesticides, PCBs, and TAL inorganics 	<ul style="list-style-type: none"> · Assess extent of waste · Assess types of waste · Evaluate the need for waste consolidation alternatives · Use data for cap configuration alternatives

TABLE 3

**TEST PIT/TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS ⁽²⁾</i>
Identify Site areas, which may require further investigation	· Collect samples of the fill and waste materials, with a minimum of one sample from each test pit and two samples from each test trench	· Data include TCL VOCs, TCL SVOCs, herbicides and pesticides, PCBs, TAL inorganics, and headspace VOCs · A portion of each sample will be placed in a separate container for headspace analysis using a PID(4)	· Use to determine areas which may need further investigation (including leachate sampling and analysis, groundwater quality investigation, or other delineation work) prior to FS or in RD · Assess types of waste · Assess active or potential impact to groundwater · Data to be used in cap alternatives formulation · Site conceptual model and leachate migration potential

Notes:

- (1) TCL - Target Compound List, VOCs - Volatile Organic Compounds, TAL - Target Analyte List, SVOCs - Semi-volatile Organic Compounds, PCBs - Polychlorinated Biphenyls
 (2) FS - Feasibility Study
 (3) UST - underground storage tank
 (4) PID - photoionization detector

TABLE 4

**LANDFILL GAS/SOIL VAPOR INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO**

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS ⁽²⁾</i>
Assess the presence of and generation potential for landfill gas (LFG) and soil vapor within and adjacent to the Site	<ul style="list-style-type: none"> · Install 18 gas probes to evaluate LFG and soil vapor concentrations 	<ul style="list-style-type: none"> · Presence or absence of landfill gas, VOC concentrations, LFG migration to nearest receptor 	<ul style="list-style-type: none"> · Assess need to collect and treat LFG - determine if LFG and soil vapor migration is a possibility on Site
Obtain current data in locations where historic information indicated potential LFG generation concerns	<ul style="list-style-type: none"> · Five of the eighteen probes will be installed in the central portion of the Site to establish the presence of methane and non-methane VOCs⁽³⁾ near the potential source of gas generation · Three probes will be installed in the vicinity of the historic UST⁽⁴⁾ removals and the Valley Asphalt drum removal area to assess the landfill gas generation rates 	<ul style="list-style-type: none"> · Whether or not methane and non-methane VOCs are present on Site · Landfill gas generation rates in discrete areas 	<ul style="list-style-type: none"> · Determine if LFG generation is occurring in discrete areas · LFG collection and treatment alternatives
Calculate future LFG generation rates	<ul style="list-style-type: none"> · Complete two rounds of monitoring, including measurement of gas pressure · Soil physical properties testing 	<ul style="list-style-type: none"> · Gas pressure, methane, LEL and oxygen readings screening for methane and LEL⁽⁵⁾ and oxygen · Summa canister samples for VOC analysis · Soil physical properties for LFG migration and generation calculations 	<ul style="list-style-type: none"> · Calculate landfill gas generation rates · LFG collection systems and treatment alternatives
Evaluate the need for and type of LFG control at the Site			<ul style="list-style-type: none"> · See above · Site conceptual model and LFG migration potential

Notes:

(1) LFG - landfill gas

(2) FS - Feasibility Study

(3) VOC - volatile organic compound

(4) UST - underground storage tank

(5) LEL - lower explosive limit

TABLE 5
GROUNDWATER INVESTIGATION
SOUTH DAYTON DUMP & LANDFILL SITE
MORaine, OHIO

<i>Letter Work Plan Objective</i>	<i>Scope of Work</i>	<i>Information Gathered</i>	<i>Data Use in FS⁽²⁾</i>
Define subsurface stratigraphy, including identifying till-rich zone(s) and sand and gravel aquifer zone(s) beneath the Site	<ul style="list-style-type: none"> · Install twenty-three on-Site VAS⁽¹⁾ borings and two off-Site VAS borings during Phase 1 · Rotasonic drilling techniques · Continuous soil cores 	<ul style="list-style-type: none"> · Soil data from soil cores 	<ul style="list-style-type: none"> · Subsurface stratigraphy for monitoring well installations · Site conceptual model - groundwater migration
Collect data to assist in characterizing groundwater impacts and select locations for monitoring wells through vertical aquifer sampling (including evaluation of existing monitoring wells)	<ul style="list-style-type: none"> · Collect groundwater samples from 5-foot intervals 	<ul style="list-style-type: none"> · VAS samples analyzed for TCL VOCs; 4 samples from each VAS boring analyzed for TCL SVOCs, total arsenic and lead⁽³⁾ 	<ul style="list-style-type: none"> · Assess need for and potential location of groundwater containment system
Collect data to assist in characterizing groundwater chemistry through sampling Site monitoring wells and analysis of samples	<ul style="list-style-type: none"> · Groundwater samples from existing monitoring wells during Phase 1 · Complete two rounds of sampling after installation of new monitoring wells (in Phase 2) 	<ul style="list-style-type: none"> · Samples analyzed for TCL VOCs, TCL SVOCs, total arsenic and lead · Samples collected after installation of new monitoring wells will also be sampled for monitored natural attenuation (MNA) parameters 	<ul style="list-style-type: none"> · Assess range of groundwater containment/treatment alternatives
Collect data to assist in characterizing fill quality under Valley Asphalt fill pile.	<ul style="list-style-type: none"> · Drill one soil boring to the bottom of the fill material. 	<ul style="list-style-type: none"> · Soil data from soil cores 	<ul style="list-style-type: none"> · Assess type of waste (Table 3) · Assess active or potential impact to groundwater · Site conceptual model
Collect groundwater and surface water elevation measurements over time to identify horizontal and vertical gradients and flow directions	<ul style="list-style-type: none"> · Collect synoptic water level measurements (ground and surface water) once a month using all permanent well installations (in both Phase 1 and Phase 2) · More detailed hydraulic monitoring in Phase 2 with transducers in select wells and water bodies 	<ul style="list-style-type: none"> · Water level measurements over time 	<ul style="list-style-type: none"> · Site conceptual model - groundwater flow patterns and gradients · Site conceptual model - groundwater/surface water interactions · Assess range of groundwater containment and treatment alternatives
Characterize geology and hydrogeology at Site	<ul style="list-style-type: none"> · Permanent monitoring wells to be installed in Phase 2 · Slug tests 	<ul style="list-style-type: none"> · Groundwater flow regime · Contaminant distribution · Presence/absence of natural processes 	<ul style="list-style-type: none"> · Site conceptual model - groundwater flow patterns and gradients · Site conceptual model - groundwater/surface water interactions · Assess range of groundwater containment and treatment alternatives

Notes:

(1) VAS - Vertical Aquifer Sampling

(2) FS - Feasibility Study

(3) TCL - Target Compound List, VOCs - Volatile Organic Compounds, TAL - Target Analyte List, SVOCs - Semi-volatile Organic Compounds, PCBs - Polychlorinated Biphenyls